

WHAT IS CLAIMED IS:

1. A catheter system for positioning a stent at a vessel bifurcation, the catheter system comprising:

a catheter, the catheter comprising:

a channel having a main guidewire lumen extending proximally from a distal end of said catheter to a main exit port, said main exit port located at a first distance from said distal end, wherein said main guidewire lumen is configured to receive a main vessel guidewire therethrough; and

a branch guidewire enclosure positioned alongside said channel and extending proximally from said side opening of said stent to a branch exit port, said branch exit port located at a second distance from said distal end of said catheter system, wherein said branch guidewire enclosure is configured to receive a branch vessel guidewire therethrough; and

a stent having a lumen and a side opening in a wall thereof, said stent positioned on a distal portion of said channel, and wherein a distal portion of said branch guidewire enclosure is positioned through said lumen and exiting at said side opening,

wherein at least one of said first distance and said second distance is less than a distance from said distal end of said catheter system to a proximal end of said catheter system and greater than a distance from said distal end of said catheter system to said proximal end of said stent.

2. The catheter system of claim 1, further comprising a balloon disposed on said channel and through said lumen of said stent, said balloon being for expansion of said stent.

3. The catheter system of claim 2, wherein said channel further comprises an inflation portion for inflating said balloon.

4. The catheter system of claim 1, further comprising a bond portion connecting said main exit port and said branch exit port to a proximal tube, said proximal tube extending proximally from said bond portion to the proximal end of said catheter system.

5. The catheter system of claim 1, wherein said first distance is between 10 and 50 centimeters.

6. The catheter system of claim 1, wherein said second distance is between 10 and 50 centimeters.

7. The catheter system of claim 1, wherein said first distance is approximately equal to said second distance.

8. The catheter system of claim 1, wherein said first distance is between 10 and 50 centimeters and said second distance is between 50 and 150 centimeters.

9. The catheter system of claim 8, wherein said branch guidewire enclosure extends proximally to the proximal end of said catheter.

10. The catheter system of claim 1, wherein said branch guidewire enclosure is a side sheath.

11. The catheter system of claim 1, further comprising a main vessel guidewire, wherein said main vessel guidewire is less than 50 centimeters in length.

12. The catheter system of claim 1, further comprising a branch vessel guidewire, wherein said branch vessel guidewire is less than 50 centimeters in length.

13. A catheter comprising:

a proximal tube portion;

a distal portion comprising a first lumen and a second lumen, wherein said first lumen is configured to receive a first guidewire and said second lumen is configured to receive a second guidewire; and

a bond portion connecting said proximal portion with said distal portion, wherein said bond portion comprises a three-way bond.

14. The catheter of claim 13, further comprising a balloon disposed on said distal portion, wherein said distal portion comprises an inflation lumen, said inflation lumen being in communication with said balloon for inflation thereof.

15. The catheter of claim 14, further comprising a stent positioned on said balloon, and wherein said second guidewire is configured to exit through a side opening in said stent.

16. The catheter of claim 13, wherein said first lumen is attached to said second lumen.

17. The catheter of claim 16, wherein said attachment is along an entire length of said second lumen.

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18. The catheter of claim 16, wherein said attachment is only at said bond portion.

19. The catheter of claim 15, wherein said bond portion is located a predetermined distance from a proximal portion of said stent.

20. The catheter of claim 19, wherein said predetermined distance is 5-15 centimeters.

21. The catheter of claim 13, wherein said proximal portion connection to said three-way bond at a distance from said distal portion connection to said three-way bond.

22. The catheter of claim 13, wherein said first and second guidewires are configured to exit said catheter at said bond portion.

23. The catheter of claim 13, wherein said first guidewire and said second guidewire are less than 50 centimeters in length.

24. A method of inserting a catheter system into a bifurcated body lumen having a main vessel and a branch vessel, the method comprising:

providing a catheter comprising a channel having a main guidewire lumen configured to receive a main vessel guidewire therethrough and a branch guidewire lumen positioned alongside said channel configured to receive a branch vessel guidewire therethrough;

providing a first guidewire having a proximal end and a distal end and a length of less than 50 centimeters, and a second guidewire having a proximal end and a distal end and a length of less than 50 centimeters;

inserting said first guidewire into a first vessel;

inserting said second guidewire into said first vessel;

inserting said proximal end of said first guidewire into said main guidewire lumen of said catheter;

inserting a proximal end of said second guidewire into said branch guidewire lumen of said catheter;

advancing said catheter over said first guidewire and said second guidewire into the body lumen until a vicinity of the bifurcation;

retracting said second guidewire until the distal end of said second guidewire is in the vicinity of the bifurcation;

advancing said second guidewire into the branch vessel; and

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advancing said catheter over said first and second guidewires.

25. The method of claim 24, wherein said first vessel is the main vessel.

26. The method of claim 24, wherein said first vessel is the branch vessel.

27. The method of claim 24, further comprising:

providing a stent with a side opening on said catheter; and

expanding said stent at said bifurcation.